Who in the world needs an M.E.L.?
By Bill O'Brien

M.E.L. stands for Minimum Equipment List, and many super smart aviation folks are surprised to find that an M.E.L. is, in maintenance terms, a Supplemental Type Certificate (STC).
An M.E.L. is an STC because it modifies the original aircraft's type certificate to allow operators to legally operate their Part 91 aircraft with inoperative, non-essential instruments and equipment on board.
Most operators of large, corporate-owned, Part 91, heavy iron aircraft think that an M.E.L. is required by the FARs. Not so! You don't need one if an operator complies with FAR Part 91, section 91.405 and keeps all of the aircraft's equipment and instruments in working order.
Unfortunately, in the real world, not everything works all the time, so every aircraft operator must have some legal way to defer inoperative equipment before they fly. One way is to develop an M.E.L.

What exactly is an M.E.L.?
An M.E.L. is a precise listing of instruments, equipment and procedures that allows an aircraft to be operated under specific conditions with inoperative equipment with no decrease in the level of safety.
It is typically developed by an operator for a specific aircraft using an FAA developed Master Minimum Equipment List (M.M.E.L.) and incorporating any modifications that may have been made to the aircraft with STCs or field approvals.

Which FARs apply to the M.E.L.
If we look deep in the dark, greasy bowels of Part 91, General Operating and Flight Rules, there are two rules that refer to M.E.L.s. The first one, as I mentioned earlier, is FAR Section 91.405, Maintenance Required. Briefly summarizing this rule: Owners or operators are required to have all discrepancies on an aircraft repaired between inspections, and prior to further flight.
This rule can be quite restrictive when applied to real-world situations. So a few years ago, a couple of FAA rule-meisters, who were blessed with real-world experience, decided to fix this. In effect, they left the door open for operators to fly their aircraft with inoperative equipment by adding paragraph (c) to FAR Section 91.405. This paragraph allows an M.E.L. to be developed in accordance with another rule, FAR Section 91.213, Inoperative Instruments and Equipment.
These same individuals also added another paragraph: (d) to another rule, FAR Section 91.213. Over the years this has become fondly known in some FAA circles as the "M.E.L. get out of jail free card." I'll fill you in on using the card a little bit later.

Which aircraft should be operated under an M.E.L?
From a maintenance perspective, I would not recommend using an M.E.L for general aviation aircraft operated under Part 91 such as the Cessna 182 size and smaller. These aircraft are not complex enough to justify creating an M.E.L.. However, if an owner/operator really wants one, the FAA has developed a generic, Master Minimum Equipment List (M.M.E.L.) for these small single-engine aircraft.
I strongly recommend, however, developing an M.E.L. for larger, faster, more complex turbine-powered aircraft.
Why? I don't think it's fair for a pilot of a Falcon 50, sitting on a ramp at Whitefish, MT, with an angry CEO and an inoperative piece of equipment on board, to be forced into making a very technical, go/no-go decision without additional operational and maintenance input. The best way

for that pilot to make that very important safety decision is to use an M.E.L. The M.E.L. spells out clearly which equipment is critical to flight and which equipment isn't.

How do I get an M.E.L.?

First the good news, getting an M.E.L. is easy. All you have to do is to talk to the friendly folks at the local Flight Standards District Office (FSDO) and tell them you would like a Part 91 M.E.L. for your aircraft. But before you do so, make sure that you fully understand the M.E.L. process. To help you unwind the deep, dark secrets of the M.E.L. process, I recommend that you carefully read FAA Advisory Circular (AC) 91-67 titled: Minimum Equipment Requirements for General Aviation Aircraft Operations Under Part 91.

When you arrive at the FSDO at the appointed time, the inspector will review the M.E.L. process with you, go over the M.M.E.L. preamble, and ask a lot of questions. If you successfully impressed the inspector with your vast knowledge of the M.E.L. process, he will then give you a copy of the M.M.E.L., which in fact becomes your M.E.L., a copy of the preamble, and a letter of authorization and sends you on your way.

I know what some of you are thinking: Where is the blood, torture, bamboo slivers under the finger nails? Where are the red ink corrections?

There are none. This is the only FAA policy that I can think of that the FAA does not approve or accept anything from the applicant; we put all the blame in your pocket. Like I told you, it's easy.

Well, it's not that easy!

Even though you just received an M.M.E.L. from the FAA, (which has now become your M.E.L), a preamble, and a letter of authorization (LOA), you can't use the M.E.L. just yet. You really have got to look over the M.M.E.L. very carefully. It's a generic document and may not reflect the equipment on your aircraft. In addition you can't use the M.E.L. until you develop a procedures manual which explains what you are going to use when a piece of M.E.L. equipment fails.

In addition, the procedures manual identifies any inspections, placards, pilot and mechanic record keeping, and any maintenance and preventive maintenance steps to be undertaken when you deactivate a piece of inoperative equipment in accordance with your M.E.L.

Who should develop the M.E.L.?

Despite the fact that many pilots consider an M.E.L. an "operations" document, it really is an STC. And since all M.E.L.s address maintenance-related functions, equipment on board, and airworthiness directives, I recommend that both a technician and a pilot sit down and jointly develop the M.E.L. and the procedures manual.

Professionalizing your M.E.L.

First read the copy of AC 91-67 over again. This AC has ALL and I do mean ALL the information you need to develop your M.E.L. This is your M.E.L. bible and you should even read the AC only if you plan to use the alternative "get out of jail free card" to fly your small GA aircraft with inoperative equipment.

The next step is to go down the M.M.E.L. items and cross out any reference to requirements for same aircraft operated under Part 121, 125, 129 or 135. With the AC serving as your guide, now compare your aircraft's equipment list against the M.M.E.L. items, and create a list of identical components you can put on your M.E.L. Call this list: Tentative M.E.L.

Next, compare your AD check list against your aircraft equipment list. If you have an AD requiring that instrumentation or equipment must be working, or a piece of equipment required by section 91.205 that requires a particular piece of equipment to be operative for a specific

operation, list that piece of equipment and its function on a separate list titled: Required Equipment List.
Use the same procedure with any of the aircraft's equipment that was added by STC or FAA Form 337, Major Repairs or Alterations and if a piece of equipment is required to be operative by the STC or Form 337 or required by emergency procedures, then add this component(s) to the Required Equipment List.
Now subtract the required equipment list items from the tentative M.E.L. list; in other words decide what you must have in the aircraft vs. what you don't need. This procedure will take you some time to sort through before you create your first draft M.E.L. But I want you to remember that you must be thorough and accurate. Also, remember that your M.E.L. cannot be less restrictive than the original M.M.E.L.
Also, if you don't mention a piece of equipment or instrumentation in the M.E.L. then that equipment/instrumentation must be operative at all times.

What should the M.E.L. look like?
I recommend that your M.E.L. mirror the FAA's M.M.E.L. column format. It should list each individual piece of equipment items by system as identified by the ATA code in column 1. When describing each system, make sure that you completely detail the interface of the equipment with the crew, its location, and what it does. In Column 2 list the number of items on board. List the number of required items for dispatch in Column 3, and in Column 4 put any remarks or exceptions.
The deactivation procedures are divided into two areas: operations and maintenance. Operations procedures are identified with a "O" in the column alongside the piece of inoperative equipment. These procedures are usually performed by pilots. Maintenance deactivation procedures are identified with an "M," and these procedures are usually performed by mechanics. However, other personnel may be qualified and authorized to perform the procedure.
Here's a "heads up" to save time and frustration when you're developing your M.E.L.: On the FAA's M.M.E.L. where it lists a piece of equipment that may be inoperative (e.g. clock), it may say in the procedures block on the same line as the word, "clock," something like "as required by the FAR." In your M.E.L. procedures block, don't repeat the words "as required by the FAR." This will just drive the FAA inspector, who does a ramp check of your aircraft's M.E.L., bonkers. Just state: "May be inoperative for VFR."
Without direct FAA district office oversight you might yield to temptation and fudge the M.E.L. creation process a bit. However, this is not the time to be sloppy because if you have an accident, the FAA will examine your M.E.L. and your procedure manual with a jaundice eye.

Additional M.E.L. items.
Remember, the M.M.E.L. is based on the manufacturer's "standard" configuration. So the FAA's M.M.E.L. may not include, your STC for the nuclear-powered microwave in your aircraft's galley, or FAA Form 337 Field Approval for the gold-plated toilet bowl with the electrically warmed, and thermostatically controlled, marble potty seat.
If you want to operate with these items inoperative, you will have to petition the FAA to put those items on your M.E.L. The way you do this is to send a letter to the FSDO requesting that the FAA's Flight Operations Evaluation Board (FOEB) put these items on the M.M.E.L. If the FSDO had determined that the equipment(s) has not previously been denied and forwards it to the FOEB, you can still include those items on your M.E.L. and operate with them inoperative until notified otherwise by the FAA.
When the FAA revises the M.M.E.L. for the aircraft, the owner of the aircraft will be notified of the revision. The owner/operator is responsible for obtaining the revised M.M.E.L. from the FSDO

and then has 30 days to replace the old M.E.L. with the revised version. The operator performs this revision of the M.E.L. on his own; there is no interface with the local office.
What happens to your M.E.L. if you decide to install a new piece of equipment like a computerized, neon, tire pressure checker and you want to put it on your M.E.L.? No sweat, all you have to do is petition the FOEB, through the FSDO, to revise the M.M.E.L. within 10 days after installing it on your aircraft. Unless you hear otherwise, you can keep the neon pressure checker on the M.E.L. But 10 days is the magic number. If you wait longer than 10 days to petition the FOEB, then pressure checker must be operative at all times.

Get out of jail free card
— an easier way?
Not all operators will want to go through the required pain and suffering of developing an M.E.L. So there is an alternative way — a legal way — in which you can defer inoperative equipment on your aircraft and still stay free of the clutches of the logbook police. One catch, however: it's limited to rotorcraft, nonturbine powered aircraft, gliders, or lighter-than-air aircraft.
This "get out of jail free card" is found in FAR section 91.213, paragraph (d). The rule sets a checklist or decision sequence a pilot or mechanic must go through before flying with inoperative equipment.
For example, let's say your navigation lights are inoperative on your Cessna 150. You physically check them and they are still attached to the aircraft but inoperative. To see if you can defer this item under FAR section 91.213 (d), you must first check your aircraft's equipment list, type certificate data sheet, and applicable kinds of operation equipment list and see if the navigation lights are required equipment. Let's say they are not.
Next check and see if the nav lights are required to be operative by FAR section 91.205 or any other FAR operating rule. OK, the rule says they are required for night VFR but not for day VFR.
Next check if the nav lights are required to be working by an airworthiness directive or STC. In this case they are not.
Now you can deactivate the nav lights in accordance with FAR section 43.13 and placard it as "inoperative." For the last step the pilot or technician must make a signed logbook entry in accordance with FAR section 43.9 stating that "the navigation lights are deferred for VFR flight only and do not constitute a hazard to the aircraft."

Inspection of inoperative equipment
When a Part 91 operator exercise his right to defer inoperative equipment and instruments under an M.E.L., there is no FAA requirement that requires the operator or the technician to fix that piece of M.E.L. deferred equipment.
The compliance times for deferred items on the M.M.E.L. are for Part 121, 125, 129 and 135 operators only. Unless the operator's M.E.L. says otherwise, there is no FAA requirement to fix a deferred item because it was deferred in accordance with an STC, and the FAA considers the aircraft in a properly altered condition acceptable to the administrator.
When you're performing an inspection on an M.E.L. equipped aircraft and you are confronted with a deferred item, and the owner doesn't want you to fix it, you still must check and see if the item is on the M.E.L. Then, make sure the item was properly deferred, and all the procedures in the procedures manual have been satisfied. Finally, ensure that the deferred item is not in conflict with any new AD or STC that has come along.
Once you are satisfied that the deferred item(s) meet the requirements of the M.E.L., or new AD or STC, then issue the owner/operator a signed and dated list of all M.E.L. discrepancies that you did not repair. Then sign off the inspection as usual.

If you’re doing an inspection on one of the “get out of jail free card” user’s aircraft, FAR Section 91.405(c) says that inoperative equipment deferred under FAR Section 91.203(d)(2), gives the owner/operator four choices on handling inoperative equipment. The deferred items must be either repaired, replaced, removed, or inspected at the next required inspection. If the owner only wants those deferred items inspected, see if those items still meet FAR Section 91.203(d) and sign it off in the logbook stating that those specific deferred items still meet the rule.